

# **VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

## **" Dialogue for Identifying Barriers to Distributed Energy & Combined Heat and Power Technologies and Developing the Strategies for Overcoming Them "**

### **Phase I Convening Assessment**

**Presented By  
Consensus Solutions, Inc.  
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(removed section on suggested  
workshop design)  
Version 3**

## I. Introduction and Background

Recognizing that state infrastructure is becoming increasingly interconnected, several Virginia agencies are engaging in proactive planning related to energy resources. The Virginia Department of Environmental Quality (DEQ), supported by a grant from the Department of Energy (DOE) and the Virginia Department of Minerals, Mines and Energy (DMME), is studying the impediments to the use of distributed energy resources and combined heat and power [DER/CHP]. Their goals in convening a series of policy dialogues are to explore opportunities, solutions to barriers and incentives for increased utilization of DER/CHP. Consensus Solutions was selected to provide an independent, neutral facilitator to assist the VA DEQ in analyzing the effectiveness of bringing together a small, representative group of stakeholders to discuss these barriers and incentives. Potential impediments may include air quality permitting, other environmental permitting, utility interconnect requirements, utility tariffs, building and fire codes, and local siting requirements. State agencies that are working to reduce or remove these barriers include the DMME, DEQ, Department of Housing and Community Development, and the State Corporation Commission (SCC).

As indicated, this Convening Assessment is the first phase of a two-phase effort, the result of which is the plan or “road-map” for a series of Forums. The goals for the second phase Forums include:

- enhanced awareness of new distributed energy technologies among public and private sector stakeholders;
- identification of perceived and actual barriers to such technologies;
- suggesting remedies to mitigate or remove such barriers;
- developing opportunities for the creation of incentives to increase the use of DER/CHP technologies.

Phase II project results will be disseminated through a final report, other publications, participation in meetings and conferences, and other outreach channels.

## II. Convening Assessment Process

Melinda J. Holland, Senior Mediator, Consensus Solutions, Incorporated conducted this Phase I Convening Assessment. She began the convening process by gathering background information from VADEQ staff, web sites, and relevant reports. A list of relevant web sites may be found in Appendix I.

Ms. Holland sent a project fact sheet [see Appendix 2] and guide to interview questions [see Appendix 3] to over 47 individuals or organizations in an effort to interest them in a telephone interview. She conducted over 24 telephone interviews of organizations and individuals who responded to the emails and telephone calls [a list of individuals interviewed, or declining participation may be found in Appendix 4]. Those interviewed included technology vendors; regulatory agencies; utilities; consultants, environmental, consumer, and community organizations; other non-governmental organizations (NGOs); economic development groups; CHP/DER energy end-users; local government officials; and other stakeholders.

The first goal of the interviews was to assess the interest of that person or organization in participating in the Forums and their suitability for participation. The second goal was to begin to identify barriers, concerns and possible solutions and incentives for increasing the use of DER/CHP technologies in Virginia. Interviewees were asked to comment on:

- Environmental or consumer concerns;
- Interconnection standards & net metering;
- Back up fees, standby fees, or exit fees which may be charged by utilities;
- How tariffs may affect on-site/distributed power production (e.g., what does or doesn't get bundled into generation and T&D portions of the utility bill);
- Other relevant utility regulatory issues, including implications of Virginia's restructuring program;
- How building and fire codes are applied to or may be interpreted to apply to CHP and DER in industrial, commercial, and residential settings in Virginia (state and local roles);
- Environmental permitting/regulatory concerns;
- Interactions, in any, with zoning and siting ordinances and regulations.

During the interviews stakeholders were also asked for additional contacts among relevant professional associations, private sector [technology vendors, technology users, builders/consultants/engineers, utilities, etc.], environmental and NGOs, local authorities and officials responsible for siting, building and fire codes compliance and enforcement, and other key stakeholders that they felt should be interviewed. This process increased the pool of interview candidates over time.

### **III. Barriers, Opportunities and Incentives Identified in the Convening Assessment Process**

This section provides a bulleted summary of the key barriers and issues, opportunities and also potential incentives discussed during the interviews. This list may be used as a starting point for dialogue at the early Forum sessions. The information is presented under topical headings, though the reader should note that some points may fall under more than one heading and thus may receive multiple citations. Also, some points were mentioned by more than one person, however the number of people making a particular point is not noted, nor are these remarks given any attribution [this was done to maintain the confidentiality of the interviewee]. This listing is designed to be a broad inventory of opinions and NOT a representation of consensus or even majority viewpoints.

#### **Language/Terminology**

A clear understanding of the terminology related to distributed energy is needed to make the Forum discussions on barriers and issues of concern productive and understandable by all participants. The following is a preliminary list of terms and concepts that need clear definition/understanding [and for some participants, education]:

- Distributed energy & combined heat and power [See the ACEEE report defining these terms at:  
<http://www.aceee.org/store/proddetail.cfm?CFID=400423&CFTOKEN=38699792&ItemID=248&CategoryID=7>];
- DER/CHP technologies to be discussed at the Forums & how they work [the EPA CHP Partnership website has good educational material which can be found at:  
[http://www.epa.gov/chp/chp\\_tools.htm](http://www.epa.gov/chp/chp_tools.htm)];

- DE Systems - differentiate between DE systems which do not feed power into the electric distribution system and DE systems which do interconnect;
- Interconnection – between a DER/CHP system and the electric distribution system – what it entails [Energy Co-opportunity (ECO) shared a guidebook they have prepared for electric coops on interconnection, it may be useful for this purpose.];
- Net Metering – what it does and does not cover; what is required by the law; how its issues differ from rest of DE systems;
- Transmission vs. distribution systems and related regulatory jurisdiction differences/issues [SCC vs. FERC];
- Tariffs – what they cover, how they are developed and adopted. For example, excess facilities tariff;
- Utility Regulation 101 – as it is relevant to Forum discussions;
- Backup power costs/requirements, excess facilities charges;
- Basics of air quality regulation as relevant to DER/CHP.

### **Environmental/Air Quality:**

#### *Barriers:*

- Air emissions from diesel generators;
- Noise from diesel generators, microturbines, etc.;
- Assurance that microturbines and other hydrocarbon burning technologies are clean technologies [e.g. low air emissions];
- Requirement for New Source Review (NSR), air quality permits can inhibit installation of some larger DE systems – some feel AQ regulations create a catch 22 – use of clean DER technologies will reduce air pollution from power plants, but the regulatory requirements may inhibit [make it cost too much] decision to install DER/CHP;
- Requirement to obtain an air quality (AQ) permit if run system more than 500 hours/year – may keep some from installing DE to use as much more than a backup or peak shaving;
- VA DEQ requirement to sample diesel fuel for sulfur content before use in DE systems – should allow use of fuel distributors analysis. Also, this seems unfair since no real regulation of mobile diesel source emissions;
- Find ways to reduce regulatory barriers for use of bio-gases to fuel microturbines, etc. and to give credit for the multiple environmental benefits which result

[avoidance of flaring of these gases and reduction in air pollution/resource consumption by power plants.]

#### *Opportunities*

- “Clean” DER/CHP technologies could reduce the demand for power from large, polluting power plants thus reducing the air emissions from those plants;
- Increased use of DER/CHP technologies could reduce the need to build new power plants in Virginia;
- Environmental NGOs could lobby in favor of green power;
- VA DEQ could ‘persuade’ the University of Virginia in Charlottesville to build a CHP facility instead of expanding the coal fired steam heat plant as it currently is proposing. This would reduce air pollution and serve as a model application of CHP;
- Create a state-wide emissions cap in Virginia to keep new power plants from locating in rural western portion of state where the air pollution the produce is carried by winds to the non-attainment areas in the eastern part of the state. The goal should be an overall net reduction in air pollution if new plants are built.

#### *Incentives:*

- VA DEQ might consider creating ‘one stop shopping’ for regulatory approvals for DER/CHP systems; standardize processes for obtaining approvals; give clear instructions, forms, rules, etc. to applicants;
- VA DEQ might consider tightening air emissions limits on flaring of landfill and digester gas along with creating incentives to use those bio-gases to fuel DER/CHP systems;
- Calculations of the net environmental gain can drive additional DER/CHP applications – for example, burning bio-gas from a sewage digester can end the need to burn the gas in an open flare, reduce the fuel consumed and air pollution created by a coal-fired power plant, reduce peak power demand, etc.;
- VA DEQ & US EPA should give “credits” for pollution offsets, e.g. when you use clean DER/CHP less pollution results per KWhour that if that electricity was produced by a large power plant. The DER/CHP generator would receive these credits, which should be marketable or trade-able.

### **Siting of DER/CHP Systems**

#### *Barriers:*

- Communities may object to siting a noise producing DER/CHP system where they can hear or see it;
- Neighbors may need education on the benefits, safety, and environmental performance of DER/CHP technologies before they will accept construction of one in their neighborhood – this can be costly, if the proponent of the DER project must do it, it may stop the project.

#### *Opportunities:*

- State and local government could build DER/CHP demonstration projects to show effectiveness, safety, low noise, low emissions, etc. to help overcome/prevent resistance to siting in other areas;
- State and local government could provide education on benefits, low air pollution, safety, etc. of DER/CHP projects.

#### *Incentives:*

- Provide incentives to communities to encourage use of DER/CHP technologies.

### **Economic & Resource Availability**

#### *Barriers:*

- Several interviewees felt that the only true barrier to increased utilization of DER/CHP in Virginia is economic – if you create an economically viable market distributed generation will happen;
- The cost of electricity in Virginia is currently so low that it is hard for DER/CHP technologies to be cost effective, unless they are very remote or have special power needs. The low cost of electricity coupled with the relatively high cost of natural gas in Virginia creates a further disincentive for DE technologies that are powered by natural gas;
- The rates utilities pay for electricity generated by DE systems are way too low and have been manipulated by some utilities that see DE as competition [and wish it would go away]. Rates paid for DE generated power may be only one half the commercial rate the utility charges for power;

- For most applications of DER/CHP, cost effectiveness is the limiting factor. High-cost components include the cost of some technologies like fuel cells, the local electric utility's requirement of special safety or connection related equipment, interconnect studies;
- When the DER system is intended to sell excess power into the electric grid, additional costly requirements exist as described under interconnect above;
- When DER/CHP systems increase in popularity, there may not be enough natural gas pipelines in Virginia to meet the demand for DER/CHP systems that run off of natural gas; especially in certain areas which are remote from pipelines. This is compounded by the fact that remote areas are often the areas where DER systems are most appealing;
- There is a perception that hydrogen for fuel cells is not widely available.

*Opportunities:*

- VA SCC could create a special fund using some small percentage of customer electric payments to support DER and green energy projects, research, etc.;
- Try the approach used in North Carolina where the state requires all who sell electricity in NC to donate to a green energy program fund which is administered by a non-profit, Advanced Energy;
- Financial programs might be listed in a clearinghouse for information;
- Help people understand how to obtain money through existing grant programs such as those run by DOE, DOD, and US EPA;
- Since low electricity costs make DER less attractive in Virginia, focus Virginia's DER promotion efforts more on non-conventional fuels like landfill and digester gas, solar, wind, etc.;
- Encourage expansion of natural gas pipelines to supply a greater portion of Virginia and to help ultimately reduce gas prices;
- Create/strengthen Virginia green power lobby so that environmental groups could do more to lobby in favor of green power.

*Incentives:*

- Provide grants or low/no interest loans for DE technology applications in Virginia;
- Depreciation schedules could be a powerful incentive for capital investments in CHP equipment;



- Incentives in the NYSERDA [NY State Energy Research and Development Authority] DER program and specifically their grants program<sup>1</sup> could be effective models [see <http://www.nyserda.org/dgchp.html> and <http://www.nyserda.org/transportation/powersystems.html>]. California has a 30% matching grant program;
- Create state tax credits for DE technology installation, especially capital costs;
- Create incentives/grants for state and local government entities to install DER/CHP at government facilities to demonstrate the benefits and provide market leadership. This would be especially beneficial to encourage use of sewage digester and landfill bio-gas to power DER/CHP systems.

### **Local Government Regulation**

#### *Barriers:*

- Lack of familiarity with DER/CHP technologies may slow approval of building, electrical, etc. permits at the local government level. For example, a code inspector may have concerns about the safety of hydrogen used in a fuel cell;
- Insurance codes – some require on-site operators for some facilities;
- Noise ordinances – some areas require that equipment be installed and noise levels tested before a permit is issued. If the equipment fails the noise level test then modification will need to be made;
- Most people with DER/CHP installation experience said they had not experienced any significant problems with obtaining local code/permit approvals for DER/CHP;
- Code inspectors are not familiar with fuel cells or hydrogen fuel.

#### *Opportunities:*

- Obtain UL and other ‘seal of approval’ for key components of DER/CHP systems that are of concern to local code inspectors;
- Provide education to local code inspectors – increase use of DOE’s DER educational ‘roadshow’ for local government code inspectors;
- Have more DER/CHP units UL certified, that give comfort to code inspectors.

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<sup>1</sup> NYSERDA will support three types of DER projects with a maximum NYSERDA funding commitment of: (1) \$100,000 for feasibility studies; (2) \$500,000 for product development and; (3) \$1,000,000 for demonstrations. All proposals must be cost-shared, preferably at or above 50%.

## **Interconnection Related & Electric Utility Interconnect Procedures & Requirements**

### *Barriers:*

- Several DER technology vendors/users felt that the costs, time and uncertainties related to utility interconnect were the biggest barriers they face in DER/CHP applications;
- One interviewee [a company which does DER projects nationwide] said no two utilities seem to have the same interconnect requirements, which means they have to learn new requirements for every project;
- Cost of impact studies, feasibility studies, contract related costs [one utility requires a \$10,000 deposit for systems over 10 MW before undertaking a feasibility study]; in general, anyone seeking interconnection [except net-metering] must pay costs of studies, new lines, new equipment needed to interconnect safely, etc.;
- Lack of established tariffs for coops and some other utilities, thus no standard fee basis;
- SCC/FERC should not 'rubber stamp' the utilities tariff requests regarding DER interconnect, instead they should proactively require these tariffs to be at least fair and preferably create an incentive for DER interconnect [for both the utility and the DER generator];
- Standardizing DER interconnect state wide or nationally may be a problem because each utilities system is different technically;
- Technical and maintenance difficulties with interconnected DE systems [example – problems finding and keeping relays working correctly];
- DER users/developers want the utility [or spread it over all rate-payers] to bear the increased costs that result from safety and interconnect requirements [or spread it over all rate payers]– but the utility requires the DER generator to pay these costs;
- Costs of net metering hookups are to be born by the utility, and the related problem of getting these costs into their rate structure [will become a problem if net metering becomes more common];
- Utilities require new DER generator to pay 100% of cost upgrades to “shared system” components such as lines, switching which may need to be upgraded due to a new DER system, yet other users will get the benefit of that upgrade at no charge;

- Need to keep adequate capacity to provide backup power to DE users when their systems go off-line – There is also a question of who pays for cost of keeping that capacity available;
- Deregulation issues may affect utility approach to DER;
- Some utilities charges are felt to be too high for interconnect studies, safety equipment, system modifications, etc. The utilities, however, feel they must have adequate studies to predict what will be needed for a safe, efficient interconnection for the new DER generator; for example they must know if the local distribution system is adequate to handle new power coming into the system at that particular location, or what changes will be needed;
- Some utilities do not have standard procedures, contracts, tariffs, etc. for new DE systems, thus it is hard to predict costs, time delays, etc.;
- Cost of 'excess facilities tariffs', backup power charges can make DER projects not cost effective;
- If a utility does not have a backup rate tariff, the backup rate they want to charge may be so high as to make it not cost effective to install a DE system.
- New hopeful DER generators find the interconnection process extremely confusing and no road map exists to guide them through the process;
- Some utilities feel the costs of seeking a new tariff for DER is not worth what it costs;
- Utilities feel they receive no benefit from helping new DER generators connect to the system so they do not want to spend utility funds that they cannot recover through their rate base.

*Opportunities:*

- Allow DER generators to pay off the interconnect related costs over time – now require it all up front;
- Create a benefit to major utilities to help DER generators interconnect;
- Pay DER generators who sell power into the grid fair rate for that power [for example, one DER generator pays 6 – 7 cents KWHr. to buy electricity from their utility, but the utility only pays them 1.5 cents KWHr for the power the DER system puts into the grid;
- DER/CHP can help reduce peak loads on large utilities;
- FERC and VA SCC interconnect standards should be 'parallel';

- Need national interconnect standard [IEEE or other] and Virginia state-wide interconnect standard which removes barriers and provides an incentive to DER;
- Develop fair tariffs so those considering DER projects can predict costs;
- Help utilities understand that DER/CHP systems can be a profitable product line that they can market and service;
- Find a way for utilities to be able to spread the cost of system expansions/upgrades which must occur to serve a new DER generator to all who benefit from that expansion; for example when an existing power line which serves many user is upgraded for a DER project;
- Spread the distribution system related [not needed just at the DER generators site] improvements through the utility rate base by allowing those expenses to be a “line item” instead of going for a rate change to FERC or VA SCC;
- Develop a guidebook or manual for first time DER generators on how to work their way through the interconnect process; also require each utility to produce a guide for interconnecting to that system with information on who to contact, fees, technical requirements, etc.;
- Help utilities understand DER/CHP systems are the wave of the future and they should get in on the ground floor.

### **Utility Regulation**

#### *Barriers:*

- VA SCC needs to change/create new regulations to make it easier to use DE systems, both from users and utilities perspective;
- Make it easier to obtain approval for reasonable tariffs that support DE [for things like backup power, excess facilities, etc.] Lack of appropriate tariffs for use of utility equipment may block larger DE systems that want to sell excess power into the commercial energy grid. Lack of backup tariff can make DE not cost effective;
- Need federal help [FERC or other] with cost effectiveness barrier created by the fluctuations in the rate you get for power sold into the grid from DE systems;
- With de-regulation, exit fees and stranded costs could become a barrier for DER

#### *Opportunities:*

- Completion of the National Association of Regulatory Utility Commissioners [NARUC; [www.naruc.org](http://www.naruc.org)] model standard for public utility commission regulation of interconnection will help VA SCC draft its regulations;
- Use California Rule 21 as a model on interconnection standards for DER/CHP;
- Have parallel FERC/SCC regulations, procedures and requirements so that DER generators are not tempted to 'forum shop', [for example, a generator could decide to sell wholesale if they prefer FERC regulation over state];
- Use Texas and Massachusetts manuals as models for a Virginia guidebook [see [http://www.state.ma.us/doer/pub\\_info/guidebook.pdf](http://www.state.ma.us/doer/pub_info/guidebook.pdf)];
- SCC should set limits for utilities on how much they can charge for interconnect related review, services, equipment, etc. and limit the amount of time it takes for the utility to complete the interconnect process;
- Establish a backup tariff rate for Virginia electric cooperatives [and other electric utilities which do not have this tariff];
- Change net metering law to raise KW limit and include all clean/green DE technologies;
- VA SCC could take a leadership role in promoting DER/CHP to create an environment where DER is cost effective – so the balance sheet creates the incentive to build and use DER and green power. Pennsylvania, New Jersey, and Maryland have good programs to promote DER and good interconnect standards;
- VA SCC could take the lead to provide fair and open access to the grid for procurement of standby power and excess generation sales;
- VA SCC could clarify whether DE systems have the right to use the wires/equipment belonging to utilities absent a tariff;
- Clarify demarcation between FERC and VA SCC regulation on DER interconnect issues.

*Incentives:*

- Create an exception for DE from exit fees charged by utilities during de-regulation. Some states provide that if less than 10% of your power is generated on-site, you do not have to pay an exit fee;
- Create rewards for utilities which are proactively supporting DER/CHP & green power; this could be in the form of rate relief. Balance the reward with the regulatory "stick" in favor of DER/CHP;

- Net metering law should be expanded to cover all small, clean DE technology applications; also expand size limit [the flip side of this from the utility perspective is that some way must be provided to cover the utilities costs in interconnection with net metered systems];
- Net metering law could also be revised to improve the incentive – (Currently you get a credit for the power fed back into the grid for the month that is only good to offset against the same month's utility bill.) Suggested looking at New York's net metering law for a model.

### **Technical/Technology**

#### *Barriers:*

- Materials used in fuel cells keep costs high;
- Costs of maintenance for DE technology can be too high when considered in cost benefit analysis, especially for microturbines. This is partly due to the fact that qualified, trained, local maintenance technicians are not available in many areas of Virginia, so significant amounts of travel time must be paid;
- No local codes exist for fuel cells – need a national standard for codes;
- Fuel cell equipment is not yet UL listed;
- Some view hydrogen for fuel cells to be in limited supply, other said it is easily available from welding supply companies;
- Need for certification of DE equipment/components [such as invertors, paralleling devices, etc.] by UL, IEEE, and other national associations;
- IEEE needs to complete its national model interconnection standards;
- Microturbines need a fair amount of maintenance [for example, the main component must be replaced about every five years]; it is difficult to find local, trained technicians to maintain these systems in some areas of Virginia.

#### *Opportunities:*

- Make the technology used to cleanup bio-gas before it is used as DE fuel more cost effective and efficient;
- Develop educational and technical assistance programs to increase awareness of CHP opportunities and technologies.

*Incentives*

- Create incentives to encourage people to convert backup generators to DER applications. Many emergency power generators now *in place* could be used for peak shaving, or other routine power supply. Collectively that is hundreds of megawatts lying idle waiting for an emergency (at hospitals, communications and data processing facilities, and many, many government facilities);
- A big incentive to converting an emergency power generator to a prime power (DER) generator would be to subsidize or incentive-ize the conversion to "make before break" transfer switches [e.g. paralleling switchgear which allows for momentary synchronization of voltage, frequency and phase with the utility source before opening the utility circuit to the dedicated panel, either in the design of the building or retrofit]. This would allow facilities like hospitals, which all have generators sitting out back, to switch to DER without interruption in service.

#### IV. Conclusions

After this intensive interviewing process, we find ourselves impressed by the level of interest in distributed energy technology applications within the majority of stakeholder groups we contacted [the environmental community's interest was a bit low comparatively speaking]. The Commonwealth of Virginia has shown its interest and commitment to DER/CHP utilization in many ways including convening these forums; the SCC's work on draft regulations on distributed generation; and the DMME's co-sponsorship of these forums, and programs such as VASE. The majority of people interviewed had moderate to extensive experience in dealing with DER/CHP technologies and/or projects. We were also impressed by the large number of suggestions made on solutions to barriers and the development of incentives. Unfortunately, many of those contacted did not respond, especially within the NGO community.

We believe that the CHP/DER developer/vendor/consultant community, as represented by those we interviewed, thinks that the biggest limiting factors for DER applications in Virginia are economic and interconnection related. The economic limitations appear to stem from the low cost of electricity in Virginia coupled with the often times high cost of interconnection related requirements and the shortage of economic incentives. Some technologies, such as fuel cells were not yet viewed as technically ready for small/medium size field application. This group is

very enthusiastic about the future of DER/CHP in Virginia and had numerous suggestions for solutions to barriers and incentives.

Based upon comments from those interviewed, it seems that several Federal agencies are promoting DER/CHP. DOE has numerous programs supporting DER/CHP including the grant to the Commonwealth of Virginia, which funded this convening assessment, along with grants for DER/CHP applications. It was reported by one interviewee that DOE is encouraging US EPA to change the Clean Air Act regulations to allow some form of credit to DER generators for air pollution mitigation per KWhr. avoided by use of DER [e.g. not be produced by a power plant]. The Department of Defense [DOD] has a grant program for installation of DER/CHP generation at DOD facilities. US EPA is sponsoring the Combined Heat and Power Partnership [<http://www.epa.gov/chp/>] and provided grant funding to one interviewee for a microturbine burning bio-gas at a county landfill in western Virginia.

The large to medium electric utilities contacted varied in their interest and response to DER/CHP generation. Some suggested that they had little or no experience or interest in the subject and declined participation. Others ranged from “cautiously interested” to very enthusiastic about DER/CHP depending on whether they viewed it as competition, a new market opportunity, and/or a way to control peak demand/avoid the need for costly system expansions. Gas utilities and electric coops appear to view DER as new market opportunities and an opportunity to provide improved service. Many understand that their interconnect related practices and tariffs cause problems for DER generators but felt FERC or the VA SCC would need to make changes to correct these problems. They were also very concerned that changes made to encourage DER applications also create incentives [not difficulties] for the utilities.

Outreach to national and state-based consumer and environmental organizations met with somewhat disappointing results. Out of 13 organizations contacted, four expressed an interest in participating at some level. Some will attend meetings, others may participate as “virtual stakeholders” via email and the internet. The environmental organization representatives interviewed favored increased use of clean DER/CHP technologies to decrease air pollution and use of renewable resources. They had strong concerns over the increased use of diesel fuel and the resulting particulate emissions, but encouraged the use of other, cleaner DER technologies.



Nevertheless, even without unanimous enthusiasm and support across stakeholder groups, we maintain that a facilitated dialogue, designed and managed by a neutral can successfully do the following:

- Identify areas for policy/regulatory improvements;
- Develop plans for incentives and solutions to barriers;
- Work to identify and hopefully resolve some of the differences between the various participant interests.

Further, we believe that linkages should be made, to the extent that timing allows, between these Forums and the VA SCC's efforts to develop regulations on distributed generation. The Forums may also identify other federal and state efforts to promote DER/CHP and ways to leverage those activities for Virginia. The neutrals hired for this effort must be intimately familiar with on the ground (in VA) issues as well as national progress.

We are confident that the Commonwealth can make significant policy strides if the proper investments of time and effort are made in accordance with the counsel above.

## V. Appendix I – Related Web Sites

NUMBER	WEBSITE TITLE	URL
1	Alliance to Save Energy	<a href="http://www.ase.org/">http://www.ase.org/</a>
2	American Council for an Energy Efficient Economy	<a href="http://www.aceee.org/">http://www.aceee.org/</a>
3	Association of Energy Engineers	<a href="http://www.aeecenter.org/">http://www.aeecenter.org/</a>
4	Blue Green Alliance	<a href="http://www.bluegreenalliance.org/">http://www.bluegreenalliance.org/</a>
5	Building Codes Assistance Council (BCAP)	<a href="http://solstice.crest.org/efficiency/bcap/">http://solstice.crest.org/efficiency/bcap/</a>
6	Business Council for Sustainable Energy (BCSE)	<a href="http://www.bcse.org/">http://www.bcse.org/</a>
7	CAEM - DE task force	<a href="http://www.caem.org/website/pages/detask.HTM">http://www.caem.org/website/pages/detask.HTM</a>
8	CAEM's Main page	<a href="http://www.caem.org/">http://www.caem.org/</a>
9	Cape Charles Sustainable Technology Park	<a href="http://www.sustainablepark.com/index.html">http://www.sustainablepark.com/index.html</a>
10	CH&P Assoc. conference	<a href="http://www.nemw.org/uschpa/PolicyDay2002.PDF">http://www.nemw.org/uschpa/PolicyDay2002.PDF</a>
11	CleanAirSouth	<a href="http://cta.policy.net/cas/index.vtml">http://cta.policy.net/cas/index.vtml</a>
12	Common Purpose for Clean Energy	<a href="http://www.serve.com/commonpurpose/">http://www.serve.com/commonpurpose/</a>
13	Consumer Energy Council of America	<a href="http://www.cecraf.org/">http://www.cecraf.org/</a>
14	Distributed Power Coalition of America	<a href="http://www.distributed-generation.com/dpca/dpca-intro.html">http://www.distributed-generation.com/dpca/dpca-intro.html</a>
15	Dominion Power - Generator Interconnections	<a href="http://www.dom.com/about/elec-transmission/gi-main.jsp">http://www.dom.com/about/elec-transmission/gi-main.jsp</a>
16	Dominion Virginia Power Bundled Rates and Tariffs for Business Customers	<a href="http://www.dom.com/customer/vabus_bundled.jsp">http://www.dom.com/customer/vabus_bundled.jsp</a>
17	ECO - Energy Co-Opportunity	<a href="http://www.e-coop.org/features589.cfm">http://www.e-coop.org/features589.cfm</a>
18	Energy Central	<a href="http://www.energycentral.com/">http://www.energycentral.com/</a>
19	Energy Foundation	<a href="http://www.ef.org/">http://www.ef.org/</a>
20	US EPA-CHP Home Page	<a href="http://www.epa.gov/chp/">http://www.epa.gov/chp/</a>

NUMBER	WEBSITE TITLE	URL
21	Green-e Renewable Electricity Program- Center for Resource Solutions	<a href="http://www.green-e.org/">http://www.green-e.org/</a>
22	Hydrogen Information Network Home Page	<a href="http://www.eren.doe.gov/hydrogen/">http://www.eren.doe.gov/hydrogen/</a>
23	Izaak Walton League of America	<a href="http://www.iwla.org/">http://www.iwla.org/</a>
24	Massachusetts DER guidebook	<a href="http://www.state.ma.us/doer/pub_info/guidebook.pdf">http://www.state.ma.us/doer/pub_info/guidebook.pdf</a>
25	MEPAV	<a href="http://www.vml.org/AFOR/MEPAV1.html">http://www.vml.org/AFOR/MEPAV1.html</a>
26	National Renewable Energy Laboratory (NREL)	<a href="http://www.nrel.gov/">http://www.nrel.gov/</a>
27	New York State Energy Efficiency Business Directory	<a href="http://www.ase.org/nydirectory/index.htm">http://www.ase.org/nydirectory/index.htm</a>
28	New York State Energy Research and Development Authority (NYSERDA)	<a href="http://www.nyserda.org/">http://www.nyserda.org/</a>
29	Northeast Energy Efficiency Partnerships Inc.	<a href="http://www.neep.org/">http://www.neep.org/</a>
30	Northeast Sustainable Energy Association	<a href="http://www.nesea.org/">http://www.nesea.org/</a>
31	Northwest Energy Efficiency Alliance	<a href="http://www.nwalliance.org/">http://www.nwalliance.org/</a>
32	NRDC Clean Air & Energy	<a href="http://www.nrdc.org/air/default.asp">http://www.nrdc.org/air/default.asp</a>
33	NYSERDA - Distributed Generation and Combined Heat & Power Program	<a href="http://www.nyserda.org/dgchp.html">http://www.nyserda.org/dgchp.html</a>
34	Old Mill Power Company	<a href="http://www.oldmillpower.com/">http://www.oldmillpower.com/</a>
35	POWERING THE SOUTH	<a href="http://www.poweringthesouth.org/">http://www.poweringthesouth.org/</a>
36	PowerLight Corporation - Solar Electric Systems and Products	<a href="http://www.powerlight.com/index.html">http://www.powerlight.com/index.html</a>
37	proVENTO AG [wind turbine mfg.]	<a href="http://www.provento.com/english/provento.htm">http://www.provento.com/english/provento.htm</a>

NUMBER	WEBSITE TITLE	URL
38	RAPPAHANNOCK ELECTRIC COOPERATIVE	<a href="http://www.rappelec.com/">http://www.rappelec.com/</a>
39	Renewable Energy Resources web site list	<a href="http://www.ucsusa.org/energy/energy.resources.html">http://www.ucsusa.org/energy/energy.resources.html</a>
40	REPP – CREST	<a href="http://www.crest.org/">http://www.crest.org/</a>
41	City of Richmond	<a href="http://www.ci.richmond.va.us/cixxi_dir.asp">http://www.ci.richmond.va.us/cixxi_dir.asp</a>
42	SCC - The Division of Economics & Finance	<a href="http://www.state.va.us/scc/division/eaf/compete.htm">http://www.state.va.us/scc/division/eaf/compete.htm</a>
43	Southern Alliance for Clean Energy	<a href="http://www.cleanenergy.org/">http://www.cleanenergy.org/</a>
44	Southern Environmental Law Center	<a href="http://www.southernenvironment.org/">http://www.southernenvironment.org/</a>
45	Southern States Energy Board	<a href="http://www.sseb.org/">http://www.sseb.org/</a>
46	Sustainable Energy Coalition	<a href="http://www.americangreen.org/SEC.htm">http://www.americangreen.org/SEC.htm</a>
47	The Barns - Loudoun Co. Solar project	<a href="http://www.ies.ncsu.edu/dsire/library/includes/incentive2.cfm?Incentive_Code=VA02P&amp;state=VA&amp;CurrentPageID=1">http://www.ies.ncsu.edu/dsire/library/includes/incentive2.cfm?Incentive_Code=VA02P&amp;state=VA&amp;CurrentPageID=1</a>
48	The Utility Connection	<a href="http://www.magicnet.net/~metzler/">http://www.magicnet.net/~metzler/</a>
49	Union of concerned scientists - Renewable Energy	<a href="http://www.ucsusa.org/energy/0renewable.html">http://www.ucsusa.org/energy/0renewable.html</a>
50	Union of Concerned Scientists	<a href="http://www.ucsusa.org/">http://www.ucsusa.org/</a>
51	UTC Fuel Cells	<a href="http://www.utcfuelcells.com/">http://www.utcfuelcells.com/</a>
52	Utility Wind Interest Group, Inc.	<a href="http://www.uwig.org/">http://www.uwig.org/</a>
53	VA Building Code Officials Assoc.	<a href="http://www.vbcoa.org/">http://www.vbcoa.org/</a>
54	Virginia Conservation Network	<a href="http://www.vcnva.org/">http://www.vcnva.org/</a>
55	Virginia Municipal League	<a href="http://www.vml.org/">http://www.vml.org/</a>
56	Virginia Natural Gas	<a href="http://www.vng.aglr.com/">http://www.vng.aglr.com/</a>

## VI. Appendix 2 - Fact Sheet

My name is Melinda Holland. I am an independent, neutral facilitator assisting the Virginia Department of Environmental Quality [DEQ] to bring together a group of stakeholders to discuss administrative and regulatory impediments to combined heat and power (CHP) and related distributed energy resources (DER) applications, and to develop recommendations for solutions to those impediments. DEQ was recently awarded a grant by the Department of Energy under the State Energy Program to study these administrative and regulatory impediments to the use of combined heat and power and related distributed energy resources. DEQ's description of the project is included at the bottom of this fact sheet.

I will conduct telephone interviews of organizations and individuals interested in combined heat and power and distributed energy technology applications. I will interview technology vendors; regulatory agencies; utilities; consultants, environmental, consumer, and community organizations; other NGOs; economic development groups; energy end-users; local government officials; and other stakeholders. The goal of these interviews is to identify possible participants for a series of five to six forums on this subject to be held in Virginia.

I would be grateful if you would agree to a brief telephone interview to discuss your interest in this project, and your ideas or concerns on the subject. Your participation is important.

Among the issues of interest we might discuss include:

- Environmental or consumer concerns
- Interconnection standards & net metering
- Back up fees, standby fees, or exit fees which may be charged by utilities
- How tariffs may affect on-site/distributed power production (e.g., what does or doesn't get bundled into generation and T&D portions of the utility bill)
- Other relevant utility regulatory issues, including implications of Virginia's restructuring program
- How building and fire codes are applied to or may be interpreted to apply to CHP and DER in industrial, commercial, and residential settings in Virginia (state

and local roles)

- Environmental permitting/regulatory concerns
- Interactions, in any, with zoning and siting ordinances and regulations

During our conversation I will also ask for additional contacts among relevant professional associations, private sector [technology vendors, builders/consultants/engineers, utilities, etc.], environmental and NGOs, local authorities and officials responsible for siting, building and fire codes compliance and enforcement, and other key stakeholders that you may know.

I will call next week (unless you prefer to converse by e-mail) to see if we can make an appointment to chat. If you would like, I will send you a copy of the basic questions I would like to cover in our telephone interview. Thank you very much for your attention to this and I look forward to speaking with you.

Sincerely,

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If you would like to speak to someone at VA DEQ about this project or my role, please contact:

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**VA DEQ Project Abstract:**

*The Virginia Department of Environmental Quality proposes to work in collaboration with pertinent state, local, and private sector partners to identify and try to surmount perceived or actual regulatory and administrative barriers to distributed combined heat and power (CHP) technologies. Potential barriers may include air quality permitting, other environmental permitting, utility interconnect requirements, building and fire codes, and local siting requirements. Among pertinent state agencies are the Department of Mines, Mineral and Energy, Department of Housing and Community Development, and State Corporation Commission.*

*The project will engage stakeholders to educate them about fuel cells, microturbines, and other advanced technologies so they can understand differences and similarities to conventional energy technologies. Stakeholders will then examine the application of permitting, siting, and other requirements, policies, and standards to distributed CHP technologies. Requirements, policies, and standards that may be inappropriately applied to new clean distributed CHP technologies will be identified and targeted for modification or clarification with respect to clean technologies. The planned outcomes include enhanced awareness of new clean CHP technologies among public and private sector stakeholders, identification of perceived and actual barriers to such technologies, and remedies to mitigate or remove such barriers. Project results will be disseminated through a final report, other publications, participation in meetings and conferences, and other outreach channels.*

## VII. Appendix 3 – Interview Guide

Thank you for agreeing to this telephone interview about your interest and experience related to combined heat and power [CHP] and/or distributed energy resources [DER]<sup>2</sup> in Virginia. Please refer to the introductory fact sheet I sent to you previously for more detail about this project. I will be pleased to answer any questions you may have during our telephone conversation.

The following is the initial list of questions I would like to cover in our discussion. Based on your involvement and experiences with this issue, our actual discussion will likely focus more on some areas than others.

1. Please provide/confirm your correct name, title, affiliation [if any], address, email address, web site [if any], phone and fax numbers.
2. Please describe your interest in or involvement with CHP/DER.
3. How did you learn about CHP/DER? Which information sources have you found to be the most effective?
4. Have you been involved in any CHP/DER projects, proposals, etc.?
5. Please describe the CHP/DER projects/proposals in which you have been involved. Please tell me about the:

- Nature of the technology;
- Type and size of application [example: fuel cell at 20 unit office complex];
- Was it intended to provide electricity into the regional power grid vs. only on-site use?;
- What motivated the selection of CHP/DER? What benefits were expected? Were those benefits realized? If not, why not?;
- Did the project encounter any difficulties? Please describe;

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<sup>2</sup> For the purpose of our discussion, distributed generation (DG) refers to the generation of electrical power at or near the site that the power is consumed. Distributed Energy Resources [DER] more broadly includes Combined Heat & Power [CHP] -- that is the generation of electrical power as well as useful heat at or near the site of use or application. DG/DER/CHP facilities may or may not deliver electrical power to the utility grid. We also include such applications as landfill gas and other waste or byproduct gases burned to produce power with or without heat recovery and with or without significant onsite or local use of the power. (For instance, generation of power from landfill gas for export onto the grid.) We are also focusing more on small to medium size facilities, rather than large commercial applications (such as pulp mills or oil refineries).



- Describe any problems related to:
  - State or federal regulatory approvals [air permits, utility regulations, etc.],
  - Local government requirements [such as zoning, siting regulations, building codes, fire and other codes, etc.],
  - Electric utility company requirements,
  - Community concerns or opposition,
  - Consumer, environmental or other NGO concerns;
- If the CHP/DER project failed at any point, please explain why; and what in your opinion were the primary causes of failure;
- What could have been done to avoid the difficulties or barriers to CHP/DER utilization [if anything]?;
- What changes or improvements would you recommend to make future CHP/DER applications more successful? Who needs to implement those changes [regulatory agencies, utilities, local governments, etc.];
- If possible, give me an idea of the priority ranking, in order of importance, of the barriers to CHP/DER application that you described and of the changes you propose;
- What incentives would you recommend be created to increase the use of CHP/DER technologies?;
- Are there any CHP/DER technologies/applications which you feel are problematic? Why? What recommendations do you have regarding those technologies?

Thank you very much for taking the time to talk to me about these issues. I will use your responses in my convening report and to help me make recommendations to VA DEQ on the issues/topics to be covered in the proposed stakeholder forums. In the convening report I will not attribute any statements to you and will respect any request for confidentiality you make. Copies of the final convening report will be made available by VA DEQ. At the conclusion of these interviews, Consensus Solutions will recommend possible forum participants to VA DEQ. VA DEQ will issue invitations to participate in the CHP/DER stakeholder forums.

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